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Cover

This month's cover features Global TVs cameramen filming the machine room for the "That's Life" program. See story on page 4.

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SPRING SHORT COURSES

UTCS offers users inexpensive, informative, short courses throughout the year. The second installment of these courses begins this month. Our intention is to provide instruction on the use of the products and facilities available through UTCS.

For a ten dollar registration fee a user will get five to ten hours of expert instruction spread over a period of several days. This registration fee is payable either in cash or non-computing appropriation three days prior to the first class. Users should enquire about what type of computing account is required for the course (if any). Registration and fees are handled by:

Information Services,
Room 206, Engineering Annex.
978-4990

Statistics

SAS101 - Statistical Computing with SAS

This introductory course emphasizes fundamental concepts and procedures in statistical computing. Some elementary JCL will be covered, and enough SAS will be taught to permit file creation from 'simple' raw data for preliminary analysis. Major topics of discussion include definition of terms (e.g., variables, observations, and missing values), file creation, data cleaning, and descriptive statistics.

Date: January 18-22
Time: 3:00-4:00 pm
Place: Engineering Annex, Room 207

SAS102 - Statistical Computing with SAS for Terminal Users

This introductory course is similar to SAS101, but a knowledge of WYLBUR and JCL will be assumed.

Date: January 25-29
Time: 3:00-4:00 pm
Place: Engineering Annex, Room 207

SAS201 - Intermediate SAS

As this course represents a continuation of SAS101, completion of that course or familiarity with SPSS, BMDP, SAS, or a programming language such as PL/I or FORTRAN will be required. Major topics of discussion include: input from complex data, report writing using SAS, dataset manipulation, and various complicated procedures.

Date: February 1-5
Time: 3:00-4:00 pm
Place: Engineering Annex, Room 207

Graphics

GRA103 - Computer Graphics at UTCS

This new course presents an overview of computer graphics at UTCS and will be based on the general needs of the class. No previous experience is necessary in computer graphics. Topics of discussion will include: KIG, Gould, and the CALCOMP 1051.

Date: January 25-29
Time: 2:00 - 3:00 p.m.
Place: Engineering Annex, Room 207

WYLBUR

WYL101 - Introduction to WYLBUR

This course presents a general overview of WYLBUR concepts. Data collection, batch job submission, and output retrieval will be taught through hands-on experience. A knowledge of at least one batch processor (e.g. FORTRAN, PL/I) is required.

Date: January 25-29
Time: 2:00-3:00 pm
Place: Engineering Annex, Room 207

continued...

SPRING SHORT COURSES continued

Source Languages

PLI101 - Techniques in PL/I

PL/I is presented structurally to foster top-down structured programming. Techniques in reading and writing clean, manageable PL/I programs are offered, as well as program testing and common pitfalls. An elementary knowledge of PL/I is desirable but not strictly necessary. Major topics of discussion include: program entities, data types, control constructs, input/output, data scope, data conversion/mapping/overlay, special conditions handling, and CHECKOUT vs. OPTIMIZING.

Date: February 22-26
Time: 2:00-3:00 pm
Place: Engineering Annex, Room 207

FOR101 - Techniques in FORTRAN

As with PLI101, FORTRAN is presented structurally to foster top-down structured programming. The techniques of reading and writing clean, manageable FORTRAN are offered, together with program testing and common pitfalls. While an elementary knowledge of FORTRAN is desirable, students with knowledge of another programming language will be accepted.

Date: February 22-26
Time: 3:00-4:00 pm
Place: Engineering Annex, Room 207

JCL

JCL101 - JCL for Beginners

This course represents an introduction to IBM Job Control Language (JCL). The use of JOB, EXEC, and DD statements will be discussed, and examples and assignments will be submitted through the card reader. Knowledge of a programming language or experience with a computing application will be assumed.

Date: February 8-12
Time: 3:00-4:00 pm
Place: Engineering Annex, Room 207

JCL201 - Intermediate JCL

This course will focus on the data definition (DD) statement. Dataset organization and DD parameters for accessing tape and disk data will be covered.

Date: March 8-12
Time: 3:00-4:00 pm
Place: Engineering Annex, Room 207

THAT'S LIFE

When *COMPUTERNEWS* originally reported on Dr. Joel Whitton in October of 1980, he was using the UTCS KIG graphics package to represent brain wave data. Dr. Whitton was using SAS to perform spectral and coherency analyses from electroencephalogram (EEG) output, and to plot the results.

Lately, Dr. Whitton's research has focused on the study of twins, in an effort to compare their respective brainwaves for similarity. This study was observed with interest by GLOBAL Television in Toronto, for their show *That's Life.*

That's Life is a magazine-format show now in its second season on GLOBAL. The show features such departments as medical progress, the entertainment industry, and a light look at current Canadian and international events.

In late November of 1981, a film crew from *That's Life* descended on the University of Toronto to see what goes on not only in Dr. Whitton's lab at the Clarke Institute of Psychiatry, but in the UTCS machine room

continued...

THAT'S LIFE continued

as well. The crew taped such machine room highlights as a plotter plotting, a printer printing, and tape reels spinning - things the average person doesn't see outside of a sci-fi movie.

In conjunction with UTCS' graphics and statistical products, Dr. Whitton has produced results which show that the brain waves of twins are very similar - much more so than the brain waves of unrelated children matched for sex and age. These similarities were found both in the frequency and time domain analyses of their responses to clicks delivered through headsets.

As of press time, the edition of *That's Life* highlighting Dr. Whitton's work is scheduled to be aired during the week of January 18th. For further details, please consult your local television listings.

David Reed

CORRECTION

In last issue's article entitled **Unix,** we stated that the Unix service located in EA206 was running on a VAX 11/70. There is no such VAX model; it should have read VAX 11/750.

For more information on UNIX VAX progress, users should contact the chairman of the "UTCS Computing Discipline VAX Steering Committee", Professor John Mylopoulos, Department of Computer Science.

David Reed

BMDP 1981

The 1981 release of BMDP will be available soon at UTCS. BMDP is a series of computer programs that provide a wide variety of analytical capabilities ranging from plots and simple data description to advanced statistical techniques. The new features of this release include new modules, enhancements to individual older modules, and enhancements which affect all BMDP modules. The new BMDP programs are:

P4F: Two-way and Multiway Frequency Table Analysis, including Stepwise Selection of Hierarchical Models, Structural Zeros, and Quasi-independence.

P2L: Cox Models for Survival Analysis, including Stepwise Selection of Covariates and Time-dependent Covariates.

P1T: Spectral Analysis.

P2T: Interactive Box-Jenkins Analysis, including Transfer Function Models.

P4V: Univariate and Multivariate Analysis of Variance and Covariance, including Repeated Measures and Cell Weights.

P8M: Boolean (Binary Data) Factor Analysis.

P9M: Linear Scores from Preference Pairs.

Some of the features that have been added to all BMDP programs are as follows:

- News and notes will be printed only if you state NEWS in the PRINT paragraph. It is suggested that you ask for NEWS the first time you run a BMDP program for the 1981 release.

continued...

BMDP 1981 continued

- Date and time are now reported at the beginning of each problem, the problem title is printed at the top of each page, and a CPU usage report is given at the end of the problem.

- You can reduce the amount of computer output by specifying LEVEL=BRIEF. or MINIMAL. in the PRINT paragraph. This will suppress the printing of the list of variables being used, as well as the codebook if you used formatted input.

- Completely new data reading for both formatted and free-formatted reading.

- Improved data printing.

- More flexible printing of shaded correlation displays (P1M, P4M, P6M, PAM, P6R, P9R).

New features have also been added to individual modules. Some of these improvements are listed below. For more information, ask for NEWS in the individual programs.

P1D: (Simple Data Description) - Option for file sorting in the INPUT paragraph.

P2D: (Detailed Data Description) - Option for stem and leaf display: state STEM in the PRINT paragraph.

P7D: (Description of Groups with Histograms) - Capacity to handle arbitrary number of groups in side-by-side histograms. Also pairwise t-tests between each pair of groups can be done by stating TTEST. in the PRINT paragraph.

P3R: (Nonlinear Regression) - Specification of function and derivatives for nonlinear regression through BMDP control language instead of FORTRAN.

For details on exactly when BMDP81 will be available, be sure to watch HOTNEWS. There has been a new manual published for this release which has a greatly expanded index and a more judicious selection of output examples. Copies of this manual have been ordered and will be available in the Information Office. If you have any questions or problems with BMDP, please contact your CSR.

Diane Mitchell

CALCOMP TEST RESULTS

The free user test of the CALCOMP four colour pen plotter was held during the week of November 2, 1981. We would like to thank all users who participated in the test. The overall response was very good, and users were generally impressed by the quality of the plotter output. They were also delighted by the ease with which one can switch between the CALCOMP and the GOULD, through the use of the KIG package.

There were a total of 153 CALCOMP jobs executed during the user test. Three problems were reported and subsequently resolved - the first involved a warning message for wrong pen numbers, the second was a problem with the FACTOR subroutine, and the third turned out to be user error. The only negative comment was that occasionally the line quality produced by the default pressurized ball point pens was inconsistent. It is felt that the CALCOMP will be used mostly for high quality, final production runs and that the liquid ball point pens, though effectively 8 times more expensive than pressurized ball point pens, will better satisfy the high quality requirement. As a result, we have chosen the liquid ball point pens as the default pen type for the production system. The pressurized ball point pens will be available as a user-selectable alternative for those who find them acceptable for their application,

continued...

CALCOMP TEST RESULTS continued

or for those who would like a cheaper alternative for development and debugging stages. (Although most development and debugging runs can be made with the GOULD, there are situations involving colour contrast, size, machine dependent applications, and pattern trials, which require test runs on the CALCOMP.)

In conclusion, the test week was a success. We verified our hardware and software, gave users an opportunity to familiarize themselves with the plotter, and obtained valuable feedback which we then used to modify and make final touches to our new CALCOMP system.

The new CALCOMP 1051 was put into production on November 18, 1981, shortly after the free user test. We are happy to report that the CALCOMP graphics system has been functioning satisfactorily since, with no reported problems.

USERBOOK section 3.8PLOTBASIC has been updated to document the new CALCOMP 1051, and is now available. Documentation summarizing the changes is available online in the IBM dataset:

APPL.CALCOMP.INTERIM.DOC

For further information, please contact your Computing Services Representative.

Further development on the graphics system is in progress, and the results will be announced and introduced to our users as they become available. For example, please see the SAS/GRAPH and CALCOMP article in this issue of *COMPUTERNEWS* for the announcement of KIG support for linking the SAS/GRAPH to CALCOMP 1051.

Kin Fong

SAS/GRAPH AND THE CALCOMP 1051

We are happy to announce that our graphics system has been expanded to support the CALCOMP 1051 for SAS/GRAPH users. The SAS/GRAPH-CALCOMP 1051 interface has been tested, and went into production on December 14, 1981.

To access the CALCOMP 1051, SAS users must specify the device name CAL1051K (or CALCOMP) in the GOPTIONS statement. Four colours - black, blue, red, and green - are available and must be specified in this order in the COLOR list. The recommended options and suggested initial trial values for HSIZE, VSIZE, HPOS, and VPOS are as follows:

```
GOPTIONS DEVICE=CAL1051K CHARACTERS
         HSIZE=10.5 VSIZE=10.5 HPOS=108 VPOS=72
         COLORS=(BLACK BLUE RED GREEN);
```

The SAS procedure has been modified to include CALCOMP support, and most users will not need to change their JCL. The default parameters will ask for 11-inch wide translucent paper and liquid ball point pens. Other combinations of paper and pen types are supported, and should be identified by form names. A new keyword parameter PFORM has been introduced to facilitate such a selection. For example, to request pressurized ball point pens with 11-inch wide translucent paper, the appropriate form name C111 is specified, as in the following JCL:

```
//stepname EXEC SAS,PFORM=C111
```

Batch users who have their own JCL procedures and TSO users should know that the CALCOMP output goes to SYSOUT class 5, destination CAL1051 via file DDNAME FT96F001. For further information on related JCL and TSO commands, filing of output, turnaround time, charging rates, and form names for paper and pens, please refer to the online documentation in IBM dataset:

continued...

SAS/GRAPH continued

APPL.CALCOMP.INTERIM.DOC

or contact your CSR.

The following two points will assist current GOULD users and new CALCOMP users in the use of both plotters:

- All of the header labels produced by each invocation of a SAS PROC statement will appear on the GOULD output. However, with the exception of the first one in a job, these header labels will be suppressed by the CALCOMP writer. This will save paper and plotting time and, consequently, cost to users.
- Users will note that changing the device name CAL1051K to GOULD (and vise versa) is sufficient to switch between the two plotters. The corresponding line types on the GOULD for black, blue, red, and green are normal, triple, double, and single-end-dot lines, respectively. The translation of a green line to a single-end-dot on the GOULD may be difficult to follow. However, the fast and cheap GOULD output for development, and the good quality colour CALCOMP output for final copies, will be a useful combination for many users.

Kin Fong

UTCS INTERACTIVE SERVICES

In order to provide more effective use of IBM interactive services on a 24-hour basis, a shift differential in the hourly connect time and CPU rates was introduced by UTCS on January 4th. The services benefitting from this change in policy are APL, ATMS, TSO, and WYLBUR. On each of these services, a prime shift is defined as those hours between 08:00 and 19:00. During these hours, the rate schedule, as currently published, will apply. Outside of these hours, and all day Saturday and Sunday (as well as holidays), a 40% discount will apply to the interactive connect time and CPU charges.

In order to take advantage of the modified rates outside of the prime shift, users should note that when any part of the session occurs within prime time, the entire session will be charged at prime-time rates. If you sign on before 19:00 and wish to take advantage of the reduced rates after 19:00, you must sign off and then sign back on. Similarly, if you sign on before 08:00 and remain signed on without interruption until after 08:00, the entire session will be charged at prime rates.

Until mid-January, the accounting report at the end of APL sessions will not reflect any discounts. These figures will, however, be adjusted accordingly. If you suspect problems in your accounting information, please contact your CSR.

With this change, IBM interactive services discounts are now in line with those on the DEC-10 and UNIX systems, where prime and non-prime time rates have existed in the past.

Frank Spitzer

UTCS MICRO-COMPUTER SERVICES

Several popular microcomputers are currently available for use in the Micro Services Lab of the Communications and Small Services division. The machines available are the Apple II Plus, the Radio Shack TRS-80, Model 1, the Western Digital Pascal MicroEngine, and a couple of Z-80 based S-100 bus micros.

We are experimenting with various peripherals for these machines, several of which are now ready for use. The Apple II Plus has the Language Card, which allows for the use of UCSD Pascal, a 3 3/4 digit BCD analog-to-digital converter, a GPIB (IEEE-488) bus interface card, a disk controller card for 8" double-sided dual-density floppy disk drives, and a Graphics Tablet package. For the TRS-80 we have the expansion interface with the Serial Interface Card. A wide variety of cards are available for the S-100 bus micros, including a video interface card, disk controllers for both 5 1/4" and 8" floppy disk drives, speech synthesis and analysis boards, and memory boards of various capacities, some with 64K on a single card.

Our experienced staff is able to custom-tailor systems for users with specific needs. We have designed and built custom S-100 based systems for many users, including the Hospital for Sick Children. We can also offer advice and consulting on most micro-based applications.

In addition to making the systems available for in-lab use, we offer such services as programming and media transfer. It is possible to convert from Apple or TRS-80 disks to CP/M disks, and from there to a DEC compatible format. The file can be transferred from there to a variety of formats, including IBM compatible magnetic tape, DEC cartridge disks, paper tape, or punch cards.

We plan to expand the media conversion function in the future to permit two-way communication between most systems. Possible future purchases include the new IBM micro-computer and the Commodore Super-Pet.

In order to disseminate information concerning micros and their use within the University, we request that current owners contact their CSR.

Phil Selby

UNIX CHARGING

As has been noted in a number of articles published in recent issues of *COMPUTERNEWS,* UNIX text processing services are an active service at UTCS. We are now offering courses to train users and familiarize staff with the use of the UNIX machine for the purposes of text editing and typesetting.

Consistent with our policy of consolidating the handling of all systems, full charging for the UNIX 11/70 text service operation will be implemented January 1st, 1982. At that time the following rates will be applied to all usage:

Connect Time & CPU Combined	$5.00 per hour
Storage Charges on Disc	$0.77 per kiloblock per day
Line Printer Charges	$1.40 per 1,000 lines
Typesetting Charges	$0.30 per inch
Typeset Simulation Charges	$0.10 per inch

continued...

UNIX CHARGING continued

These rates are the same as were published in *COMPUTERNEWS* in issue 193, except for the storage charges which were incorrectly quoted in that article. The amended figure above corresponds very closely to the rate of charging applicable on all UTCS services.

It should be noted that all charges for connect, storage, and line printer may be charged against any kind of CAN, whereas typesetting and typesetting simulation output must be charged to a "real money" appropriation account. Should this change of policy cause any particular concerns, please contact your CSR.

Note that the connect time of $5.00 per hour is reduced to $3.00 per hour after 7:00 p.m. and until 8:00 a.m.

Frank Spitzer

A NEW FORMATTER FOR UTCS

UTCS has a long history of text support. Products such as ATMS, SOS/RUNOFF, and now UNIX Text Services are currently being offered as answers to different users' text processing needs. While they may meet the needs of individual users quite well, all these products have a problem -- they are only available on a certain machine, or in a certain environment. In addition, there is no class "A" product which is available to our TSO, WYLBUR, or GPJS Batch users.

As a way of dealing with this problem, UTCS has been looking into new formatting packages which are appearing on the market. In order to maximize the usefulness of these products, UTCS developed the following set of criteria against which the various products were evaluated:

Reliability: The formatter had to be reliable. Since no major program with the complexity of a formatter is ever bug-free, this meant that:

- The product had to be actively maintained by the distributer. There had to be a mechanism whereby bugs could be reported to the distributer and fixes provided.
- The product had to be well coded and have usable maintenance documentation.

Portability: The formatter had to be able to run in various environments. Although it would be most desirable to encourage all text processing users to work in one environment, UTCS recognized that in practice this would be difficult to achieve because many users would be using the machine to perform functions other than text processing, and would wish to use the same environment to perform all functions. Thus, by providing one formatter accessible from several different environments we hoped to effectively support more users in the environment of their choice.

Device Independance: The formatter had to be able to drive several different output devices. It had to be possible to prepare documents which could be printed on all devices supported by the formatter with few or no changes.

Devices which we wanted to support with this formatter included: VT52/VT100s, other CRT terminals, ASCII printing terminals (optionally, with proportional spacing), 3270 terminals, Line Printers (e.g. 1403), the Xerox 9700 Printer, the CAT phototypesetter, VARIAN Plotter, the VIP Phototypesetter (at U of T Press), the Linotron 202 typesetter (at U of T Press), and the GIGI Graphics Terminal.

Good Documentation: The product had to be supported by good documentation. Both user and maintenance documentation would be required. As a minimum set, the following manuals would be needed:

continued...

NEW FORMATTER continued

- **Training Manual:** A training manual (like the WYLBUR "User's Guide") would be required. This manual would have to be understandable by someone who is not "computer oriented" and has not used the formatter.
- **Reference Manual:** This manual would not be a substitute for the Training Manual, but would be organized in such a fashion that it could be easily accessed by users familiar with the product.

Generic Markup Facilities: A Generic Markup Language provides a way of defining a document for formatting in terms of the parts of the document (chapters, sections, headings, paragraphs, etc.) instead of defining it in terms of how the formatter is to lay it out ("put a blank line here", "indent this text by 5 spaces", etc). A Generic Markup Facility would be particularly useful to those people working with large documents because:

- it enforces a common style throughout the entire document (or through several documents),
- it allows parts of a document to be easily used within other documents,
- it simplifies what the user has to enter to control the appearance of the document, and
- it allows different people to work on parts of a document and ensures that the results can be merged into one large document when ready.

A Generic Markup Facility had to come with a set of one or more "starter styles" for different types of documents. These styles had to be "commented" so that they could be modified by UTCS or by the sophisticated user. Styles which would be needed include Memo, Report, Documentation, and Thesis.

Good Error Handling: The product's action in case of error had to be understandable to the user. This meant that error messages had to be clear and easily understandable, that the offending text had to be clearly located, and that the formatter had to make every effort to continue to check text for errors even after a disastrous error occurred.

Cost: Obviously, the formatter would have to run efficiently enough that it would not cost too much to use.

UTCS' Text Product Line Group (PLG) has been meeting to discuss the problems and to examine a short list of possible formatters. Although none of the products on the short list met all the requirements in full, one product did seem to meet many of them, and the PLG has decided to bring that product to UTCS for testing.

The SCRIBE Formatter

SCRIBE appeared to be the product which met the objectives most fully. It is currently available on the DECsystem 10, and is announced for IBM MVS. It is also available on Digital's VAX systems. Indeed, Digital Equipment Corporation has adopted SCRIBE as a formatter within the VAX environment -- an increasingly popular computing environment in both universities and industry.

In addition to being available on different machines, it supports a large variety of output devices including Diablo terminals, the CAT phototypesetter, GIGI terminals, the Varian Plotter, line printers, and the Xerox 9700 (including proportional spacing and mixed fonts on that device). We expect that SCRIBE will also be able to drive U of T Press's Linotron 202 typesetter in the near future.

SCRIBE User Test

The preliminary evaluation showed that SCRIBE might meet the needs of a large number of UTCS users. However, it was felt that a test period at UTCS was necessary to establish that:

- it would run without problems,
- it would perform the functions UTCS users need, and
- it wouldn't cost UTCS users too much.

continued...

NEW FORMATTER continued

If it met all of these requirements, UTCS would propose to install and support SCRIBE.

The distributor is willing to provide SCRIBE for a two month test period. Thus, UTCS proposes to make SCRIBE available on our DECsystem-10 for two months. UTCS encourages active user involvement during this testing period. All users interested in trying out SCRIBE for themselves, or those who simply would like to know more about the product or about the recent formatter review, are asked to call their CSR.

John Bradley

WYLBUR HELPS

If you use WYLBUR or are about to learn it, you will be interested in the new set-up of the WYLBUR Helps. These short descriptive files are very useful for answering questions that arise while a user is sitting at a terminal. Hopefully, the information obtained will be sufficient to answer the questions, making a trip to any manual unnecessary.

The user will notice that during the sign on procedure he or she is pointed to "Help on Help". This file points the user to any of the helps that are available in WYLBUR.

Wylbur users are able to receive online help in three ways:

1. The "HELP" facility,
2. The "DO" facility,
3. The "DO IBMHELP" facility.

Each facility has an index that the user may access to determine where to find the help required.

The "HELP" Facility

The "HELP" facility contains information on Wylbur commands.

Syntax: HELP ON <WYLBUR COMMAND NAME>

The "HELP" facility index is obtained by entering the following:

Syntax: HELP ON INDEX

If the user has an IBM 327X type terminal, he may receive this information by the above method, or he may take advantage of the "PFK1" function key. With the "PFK1" key, the user simply enters the <WYLBUR COMMAND NAME> followed by "PFK1" - e.g., HELP ON INDEX BECOMES INDEX (PRESS "PFK1").

N.B. The user must respond in upper case to any prompt from the help command.

The "DO" Facility

The "DO" facility contains information on WYLBUR system exec files. The EXEC files assist users in managing their datasets. One word of caution - the "DO" facility is local to UTCS. How to use the "DO" command and how to get help on any of the "DO" functions and their parameters is described immediately below.

Syntax: DO<EXECFILE NAME>

The "DO" facility index is obtained by entering the following:

Syntax: DO INDEX

If the user wants to see an explanation of any of the "DO" exec files, the documentation may be displayed at the terminal by the following method:

Syntax: DO <EXECFILE NAME> ?

continued...

WYLBUR HELPS continued

N.B. There are no blanks permitted between the exec file name and the "?" - e.g., DO REG?. This will describe the procedure for using the "REGISTER" command.

The "DO IBMHELP" Facility

The "DO IBMHELP" facility gives access to information on

Syntax: DO IBMHELP <NAME>

The "DO IBMHELP" facility index is obtained by entering the following:

Syntax: DO IBMHELP INDEX

Steve Younker

COMPUTING NEWS IN BRIEF

Call For Papers - National Educational Computing Conference

The National Educational Computing Conference will be held from June 28 to 30, 1982, in Kansas City, Missouri. Hosted by the University of Missouri-Columbia, the conference will deal with a wide range of topics relating to the use of computers in the fields of education, industry, health care, and government. Papers on these and related topics are welcomed, and should be submitted by January 15, 1982.

L'Ordinateur Qui Parle

A computer that speaks both French and English has recently been developed at Concordia University in Montreal. The computer is more fluent in English than in French, yet this problem is caused by neither the hardware nor the software. Instead, it is attributable to the relative complexity of French grammar which necessitates far more programming than does English. Once programmed, however, French lends itself more readily than English to computer-synthesis.

Because the rich grammar of French conveys a great deal of meaning, variations in intonation are relatively few. This feature coincides neatly with the limited range of tones the computer 'voice' is able to produce. By contrast, English relies heavily on intonation to convey meaning, and so cannot be represented as accurately through computer-synthesis.

Despite these limitations, the system produces a sufficiently coherent copy of human speech. It is hoped that its implementation can enable visually handicapped computer users to receive communication from the terminal.

Horses' Movements Analyzed

The effects of various factors on the strides of racehorses is being analyzed with the help of a computer at the University of Saskatchewan. Essentially, the computer's role is to manipulate the data produced.

Horses in motion are filmed at a rate of 200 to 500 frames per second. Each frame is then superimposed on a grid which delineates 500 distinct points on each horse's body. An enormous amount of data is generated by this process, which the computer manipulates, or 'crunches', changing it into a more meaningful state.

The study is being conducted in the hope of gaining a better understanding of the nature of a horse's movements and the factors effecting them, such as various kinds of terrain, or the type of shoe worn. This understanding would facilitate more efficient use and more humane treatment of horses, and could eventually be applied to all animals,

continued...

COMPUTING NEWS IN BRIEF continued

including human beings.

Work Term Available in Computer Science

The computer science department at the University of Manitoba now offers its honours students the opportunity to gain employment experience while acquiring their degrees. Students will mix work terms with study terms, and will be required to submit work term reports as a means of integrating that experience with the classroom study. Computer science is the first department in the science faculty to offer a work term option.

Task Force Report on Microelectronics

On November 5, 1981, the Honourable Larry Grossman, Minister of Industry and Tourism, tabled the Report of the Task Force on Microelectronics. The Task Force, set up in March of 1980, was comprised of experts from various fields related to and/or affected by the microelectronics industry, such as education, industry, government, and various microelectronics companies. Their mandate was to assess the opportunities for this technology in labour and industry, as well as the benefits and adjustments such a change would entail.

The approach adopted by the group was to investigate industries and branches of labour that have already made use of microelectronics, and to analyze the resultant utility and impact. From this analysis, it was hoped that the advisability of expanding its range could be deduced.

Not unexpectedly, the conclusion was drawn that computers have an important role to play in Canada's future, and can benefit both the work force and the general populace. Their application is vital for Canada as a whole if it is to keep pace in the world trade market. Individuals would serve to profit, both economically and personally. Overall productivity could be increased, thus raising the standard of living. In addition, the bulk of tedious and non-creative labour could be reduced, freeing individuals to develop more productive and rewarding skills, and to make better use of increased leisure time. The Task Force stressed that, in view of the inevitable social impact, accomodations to ensure that these benefits could be enjoyed would have to be made.

It is clear that good reasons for a concentrated implementation of microelectronics can be advanced. That the government of Ontario has recognized the potential benefits of computer technology, as well as the need to prepare for its impact, is itself evidence of the timeliness of the Task Force's recommendations.

Thea Smith

UTCS CHANGE COMMITTEE

1. Two 3350 double capacity disk drives were added to the Academic machine configuration on October 31. These were installed as a means of balancing the load on the Academic system's DASD devices, and are dedicated to paging.
2. The CALCOMP 1051 colour drum plotter was put into service on November 18. [See the November/December '81 issue of *COMPUTERNEWS]*.
3. A two-month trial of an INTEL solid-state disk device terminated on December 15. UTCS tested this device extensively and concluded that it was inappropriate for utilization in our

continued...

UTCS CHANGE COMMITTEE continued

MVS/TSO environment. Since the solid-state disk did not adequately resolve 3033 congestion, the installation of four more megabytes of memory was approved at the Change Committee meeting of December 17. The new memory was installed over the Christmas break.

4. 2741 terminal support is to be phased out across all systems. Their utilization has dropped well beyond the point where supporting them is economically viable. This Change Request was introduced and approved on December 17, but a date for dropping support probably won't be set for a month or so.

5. UTCS will also be dropping support for the 2400 7-track tape drives. Users who still have data stored away on 7-track tapes should check with their CSR about getting them converted to 9-track.

6. The old 3275 BACKLOG display terminal at Arts & Science was replaced on November 30 with a 3278. The BACKLOG display program was rewritten to enable it to utilize the newer screen device.

7. UTCS will soon drop support for old MVS-MVT conversion JCL which IBM no longer supports. No specific date has been set for this yet since the impact of this undertaking is still being assessed. See future issues.

8. The new version of SHARP APL went in on November 28. [See the October '81 issue of *COMPUTERNEWS]*.

9. BMDP (a statistical applications package) is to be upgraded to a new release. This work hasn't been scheduled yet.

10. Six more Academic System 3033 PACX ports were added during November (Class 32 4800 baud) to improve availability of high-speed direct connection to TSO, WYLBUR, and APL.

11. EMPIRE, a financial modelling package, was installed on the DECsystem-10 on November 26 at the request of the Faculty of Management Studies and the Business Information Systems Department.

12. Undergrads won't be able to submit their $ACCT HSJS jobs through the Physics terminal card reader as of the beginning of the new year. Extensive use of this terminal by undergrads has become a matter of considerable concern to this terminal's research users.

13. A LIBRA (VAX/750) Student Services facility is currently being installed at the Scarborough campus. This should be up and running for the new year.

14. The prerequisite installation of SHARP APL delayed the installation of MVS/SP Release 1.1. Now that the new SHARP APL is installed, MVS/SP has been tentatively scheduled for February 1.

15. The SERIES/1 3278 emulator for ASCII terminals is currently being tested internally by UTCS staff. It is functioning very well and a date for making it accessible by the user community should be available soon.

Terry Farley

SUMMARY OF APL HOTNEWS ITEMS

The following list encompasses HOTNEWS items entered after October 1, 1981 and before December 12, 1981.

DATE	TITLE
11/11/81	Documentation variables in ws 1 FILEPRINT have been edited.
23/11/81	The new release of APL will be installed this coming weekend.
28/11/81	The new June 81 Release of SHARP APL was installed on November 28.
01/12/81	Problems with ws: 1FILEPRINT and 4 DOCWS after new release.
16/12/81	1 FILEPRINT has been fixed.
16/12/81	Workspace 20 EGM has been recovered.
16/12/81	Problem with SUBMIT, from WS. 1 XER has been corrected.

APL HOTNEWS may be accessed by loading the workspace, 1 HOTNEWS. For example, to print the news of November 28, 1981, type: NEWS '28/11/81'. To print all news items since October 1, 1981, type: NEWS SINCE '01/10/81'. For more instructions on the use of this workspace, please see the variable DESCRIBE.

Mary Ann Lawry

3 YEARS AGO

The following article originally appeared in the January 1979 issue of *COMPUTER-NEWS.*

Hello 165 - Goodbye 65

Over the weekend of January 20-21, personnel from Bell Canada Ltd., IBM Canada Ltd., and UTCC completed a project to transfer APL and ATS services from the S/360-65 system to the S/370-165-II system. The key components of this conversion involved the relocation of some equipment in the machine room plus the conversion of APL files and workspaces from 2314 disks to model 3330-11 disks. Prior to the weekend, a new operating system, OS/MVT/21.8, had been installed and tested on the 165 by UTCC. Following this event, test versions of APL and STS were run on the 165 to verify the functionality of these systems.

The transfer was carried out in a manner quite similar to the 165 cutover. At 18:00 hours, services to APL and ATS users were terminated so that the telecommunications facilities could be disconnected. These facilities were moved to a new location in the machine room and temporarily reconnected to the S/360-65. Following this, UTCC personnel completed several operational procedures including month-end accounting plus a full set of backups. As backup tapes were completed, they were restored onto the 165 disks. Additional equipment moves and cabling changes were carried out to finalize the complete configuration of the 165. Full tests were run to verify all aspects associated with APL and ATS. New rates were installed and validated, and all files were again backed up.

During these activities, no major problems were encountered. In fact, UTCC was able to offer full user service on Sunday, Janu-

continued...

3 YEARS AGO continued

ary 28, one day earlier than originally planned.

This conversion brings to an end all services on the S/360-65 - the last 360 generation CPU at the University of Toronto. The 65 was installed at UTCC in 1968 as part of a dual 65 system in the Sandford Fleming Building. When the 165 was installed, it was moved to the McLennan Laboratories where it was dedicated to running APL, ATS and, until 1974, CPS. It has remained in the McLennan location ever since. During this time, the load has grown at least five times, a fact which has resulted in the saturation of the system for substantial periods during the academic term. Throughout the last ten years, the 65 service has proved to be highly reliable even when construction activities in the immediate vicinity of the 65 resulted in a less than ideal environment.

In closing, we say good-by to the 65 which is being dismantled and sold along with several of the peripheral units which were attached to it. We would like to thank the IBM personnel who maintained the S/360-65 and the UTCC personnel who were responsible for its operation.

Derry Cox

OUCC XIII

This year the University of Guleph will be hosting the 13th annual Ontario Universities Computing Conference (OUCC), June 7-10, 1982. Nexus, the conference theme, means connection. This year's OUCC will explore how people, machines, and ideas connect and interact to create our present and our future. The word "nexus" expresses our conviction that computers can play a vital role in linking together people from different disciplines and bringing about a necessary synthesis in our fragmented society.

Each year the conference provides a forum for discussing developments and issues which affect us all. Speakers have been invited from across Canada and the United States to address the following topics:

Large Systems: Here Today and Tomorrow?
Are we uninformed about the Information Society?
Management Strategies
Disaster Planning
Legal Issues

If you are interested in attending and would like registration information, please write:

The Program Committee, OUCC 13
Institute of Computer Science
University of Guelph
Guelph, Ontario
N1G 2W1

DEC-10 GRIPES

Gripe:

For the past 10 minutes I have been attempting to connect to the 10. Each time I enter "CLASS 10", PACX responds with:

```
CLASS 010 START P<BX˜
```

and promptly disconnects me (within a few seconds). I was finally able to connect a few moments ago. What gives?

Gripe answer:

Please phone the operator immediately when you get a PACX problem. The

continued...

DEC-10 GRIPES continued

operators have been provided with instructions which allow them to figure out what line is causing the problem and to take appropriate action on that line.

The problem in this case was almost certainly a bad line from the PACX to the DEC-10. (The PACX acts as a switchboard matching your incoming bell telephone line to an outgoing DEC-10 line.) Had you phoned the operator right away, he or she could have determined which DEC-10 line was bad.

Gripe:

DIR *.MEM[,,*]

works (as it should), but

DEL *.MEM[,,*]

complains

"?INCORRECT PPN".

Does this make any sense?

Gripe answer:

Delete has never supported the construction you give. Also, unlike Direct, Delete will not assume an asterisk for a filename extension if it is not given. These restrictions make deleting files a little safer.

Gripe:

How about modifying IPRINT to add card sequence numbers and ID to .FOR or .F4 files if requested?

Gripe answer:

Iprint is a utility specifically designed for transferring files from the DEC-10 to the IBM spool (from where it can be printed). File sequencing would be completely foreign to its designed use.

Both the PIP utility program (alias the copy command - type "HELP PIP") and SOS are capable of sequencing a file. If you require further assistance please don't hesitate to contact timesharing advising at 978-6465.

Gripe:

How about making the QUEUE check a little faster by allowing the command: "Q/C/F"? Would it be very much trouble to make the patch?

Gripe answer:

You may get the fast version of the listing by coding: Q [-]/F.

LETTERS

Sirs:

Is there any possibility, or should I say hope, that additional ports might be added to the UTCS system so that users in different locales (often thousands of miles away) can have equal opportunity to access their data via PACX and/or TELENET? More often than not there is only one port at UTCS. Consequently, a "connect" message instantly informs you that the "Destination (is) Busy". I, for one, have often tried to tie in for three days in a row without success. I suspect other users have had similar experiences.

Now that the PACX/TELENET feature has become so popular, why not make it more accessible? As an interim measure, the user should have the option of queuing up for his turn, or placing a reservation whereby the UTCS system would specify a time (hopefully not days later) to access the system again. The current user of the port might also be gently informed that other users are waiting to tie in. In most cases I

continued...

LETTERS continued

suspect this would encourage the person using the system to leave as soon as possible so that others could at least have a shot. Until there are more ports for us ships to dock at, how about some Aloha outriggers?

Harry Makler

Reply from Dr. Edmund West

Dr. Cohen has requested that I reply to your recent series of communications regarding the issue of DATAPAC access to the DEC-10 and other UTCS systems.

As you know, the frequency of "Destination Busy" messages issued to DATAPAC users has been quite high recently. UTCS has been aware of this problem for some time. Mostly, this is due simply to increased use of the DATAPAC line. As a result, we have been studying the possibility of adding an additional DATAPAC line. We are presently analyzing our records of the line's utilization. Our preliminary results show that its use during the past few months has been rather erratic, ranging from very little usage some months to a great deal in others. This study is continuing.

One of your suggestions was that users be queued when their destination is busy (such as PACX does when a particular class is filled). Please note that the "Busy" message is issued by the local DATAPAC node when it discovers that the requested address is already in use. This means that UTCS is never even aware that a request is being made for its busy line. It might be possible for DATAPAC to implement a queueing procedure, but not for UTCS. Similarly, there is no mechanism for informing the present user of the DATAPAC line that someone else wishes to use it.

I should also mention that DATAPAC occasionally experiences a problem with their software which results in callers being told that our line is busy when it is, in fact, free. We are presently working with DATAPAC personnel on this problem.

I hope I have been able to inform you of the present situation vis-a-vis DATAPAC. The situation is being studied and we hope to be able to improve our service in the not-too-distant future. Thank you.

PERSONNEL CHANGES

Suzan Fawcett, a former Administrative Assistant, left in October 1981. It's been great working with Suzan and our best wishes go with her.

Our supervisor of IBM 3033 Operations, **Paul Scarborough,** is leaving this month to work at the Bank of Commerce. Paul has worked at UTCS for 12 years. Lots of luck in all your future plans.

One of the Computing Services Representatives, **John Mavity,** is leaving to work in Ottawa. Good luck, John.

Sandy Ballantine, who works in the Information Office, is away on maternity leave, and now has a baby boy. **Sherry Zweig** will be acting as her replacement until Sandy returns in March of 1982..

Harriet Cooper has joined UTCS to work on a project assignment of Office Automation.

Kathryn Bourne

RECENT ACQUISITIONS IN THE DCS LIBRARY

Barr, Avron, ed.
The handbook of artificial intelligence, ed. by A. Barr and E.A. Feigenbaum.
Los Altos, Cal., William Kaufman, Inc., 1981. 1 vol.

Berkeley Workshop on Distributed Data Management and Computer Networks, 5th, University of California, Feb. 1981.
Proceedings.
Berkeley, Cal., 1981.

Bogod, Julian.
The role of computing in developing countries.
London, British Computer Society, 1979.

Conway, R.W., Gries, D. and Zimmerman, E.C. 2d ed.
A primer on PASCAL.
Cambridge, Mass., Winthrop, 1981.

IBM Symposium on Mathematical Foundations of Computer Science, 6th, Hakone Yama no Hotel, Japan, May 1981.
Logic aspect of programs.
Tokyo, IBM Japan, 1981.

Intel Corporation.
Introduction to the iAPX 432 architecture.
Santa Clara, Calif., 1981.

International Colloquium on Formalization of Programming Concepts, Peniscola, Spain, April 1981.
Proceedings, ed. by J. Diaz and I. Ramos.
Berlin, Springer-Verlag, 1981.

International Conference on Computer Communication.
Proceedings of the 4th (1978) and 5th (1979) conferences.

Kidder, Tracy.
The soul of a new machine.
Boston, Little, Brown and Co., 1981.

Ledgard, Henry, et al.
Directions in human factors for interactive systems.
Berlin, Springer-Verlag, 1981.

Martin, James.
Design and strategy for distributed data processing.
Englewood Cliffs, N.J., Prentice-Hall, 1981.

Martin, James.
An end-user's guide to data base.
Englewood Cliffs, N.J., Prentice-Hall, 1981.

Moore, Ramon E.
Methods and applications of interval analysis.
Philadelphia, S.I.A.M., 1979.

Salomaa, Arto.
Jewels of formal language theory.
Rockville, Md., Computer Science Press, 1981.

UTCS SYSTEMS

3033/N12 PROCESSOR

- located in McLennan Physical Laboratories
- provides General Purpose Job Stream, High Speed Job Stream, TSO, WYLBUR, APL and ATMS services
- 12 megabytes of memory
- MVS with JES2

4341 PROCESSOR

- located in McLennan Physical Laboratories
- provides administrative IMS/VS DB/DC, Batch and TSO
- 8 megabytes of memory
- MVS with JES2

DECSYSTEM-10 Model 1090

- located in McLennan Physical Laboratories
- provides General Purpose Time-Sharing
- 256 K - 36 bit words of memory
- TOPS-10 operating system

COMMUNICATIONS & SMALL SYSTEMS (CSS)

- located in Old Metro Library Bldg., Room 244
- DEC PDP-11/40 with GT44 Graphics
- DEC PDP-11/05 with GT40 Graphics
- Various Z80-based microcomputers (S-100, CP/M)
- Radio Shack TRS-80
- Western Digital Pascal MicroEngine
- Apple II Plus
- provides specialized interactive graphics
- provides online and real-time computing services, data acquisition and conversion, and minicomputer services

Computing Services Representatives and Enquiries

Arts and Science Terminal	Bill Fehlner	SS2133	6509
Engineering Annex Terminal	Sue Mai Chong	EA104	4357
Erindale College Terminal	Peter Wall	2043	828-5311
External Customers	Ihor Prociuk	SG200	6875,6885
New Physics Terminal	Bob Chambers	MP331	5120
Scarborough College Terminal	Bob Blackburn	S630	243-3173
Time Sharing Services	TBA	SG204	7109

General Enquiries	4990
Programming Advising	6465
Access Codes	8703
Account Enquiries (U of T)	8702
Account Enquiries (External)	7148
Tape Library (Academic Services)	7319
Tape Library (Administrative Services)	6693
System Status Enquiries (DEC)	4318
System Status Enquiries (IBM)	7319
Time-sharing Services (PACX)	6200

UTCS Directory

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Supervisor, CSS Software	Ian Darwin	ML244	6134
Supervisor, Communications	Ron VanderKraats	ML244	4624
Supervisor, DEC Operations	Krishna Patnaik	MP368	4086
Supervisor, DEC Systems	Ed West	MP331	4085
Supervisor, Entry Services	Vera Cabanus	MP217	5040
Supervisor, Field Services	Kam Mark	ML244	5471
Supervisor, IBM 3033 Operations	TBA	MP368	6220
Supervisor, IBM 4341 Operations	Dave Wong	MP368	6864
Supervisor, IBM Systems	Barry Lay	MP331	6281
Supervisor, Information Services	David Reed	EA206	2066
Supervisor, Internal Systems	Peter Young	MP331	5530
Supervisor, Keypunch Services	Zelda Anderson	HU215	5273
Supervisor, Personnel & Budget	TBA	MP345	8697
Supervisor, Programming Services	Paul Roth	SG205	8701
Supervisor, Student Services	Tom Milligan	MP331	7083
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